

Notice of Allowability

Application No.

10/608,317

Examiner

Tatyana Zalukaeva

Applicant(s)

AUSTIN ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 06/27/2003.
2. ☒ The allowed claim(s) is/are 1-5.
3. ☒ The drawings filed on 27 June 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 06/27/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT/COMMENT/REASONS FOR ALLOWANCE

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In claim 1 in paragraph 2 line 13 of the claim replace "a)4)" by ----(a) (4)----

In claim 4, line 2 of the claim replace "a)" after the words "separate steps" by ----
(a)----

In claim 4, line 3 of the claim replace b) after the words "used in step" by
----(b)-----

In claim 5 replace "a)2)" after the words "in step" by ----(a) (2)-----

These amendments are made with the purpose to better distinguish and separate the steps and substeps.

Allowable Claims

2. Claims 1-5 are allowed over the prior art of record.

Reasons for Allowance

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3. The following is an examiner's statement of reasons for allowance: Modeling polymerization reactions, specifically studying kinetics of copolymerization in order to control molecular architecture is known in the art of polymer chemistry.

Thus Buchelli et al (U.S. 5,504,166) discloses control method for polymerization of alpha-olefins. (abstract), wherein the reference is made to a specific control method from the input data of various process variables of the reaction system. The computer inputs include (1) concentration of hydrogen in the monomer feed, (2) polymer concentration (percent solids) in the reactor system, (3) temperature of the reaction mixture, (4) rate of flow of the monomer to the reactor, and (5) a time factor to compensate for delay. The production rate is also disclosed as a useful input signal. Thus, regulation of the hydrogen feed rate is accomplished in response to a hydrogen analysis in the feed corrected to indicate the hydrogen concentration in the liquid phase in the reactor. In addition, output signals representative of the melt index of the polymer in the reactor effluent and the concentration of hydrogen in the reaction liquid are obtained. (col.3, lines 25-43). Equations 4 and 5 were derived from a kinetic model of the polymerization process. Equations 1-6 illustrate the relationships, for each reactor employed, between (a) the melt flow rate of the particulate polymer (homopolymer or copolymer) product withdrawn from such reactor and (b) a first set of parameters comprising the rates of introduction of quench liquid and vapor recycle into each zone of such reactor, the heat of polymerization in such reactor, the latent heat of vaporization of the quench liquid in such reactor, the total mass inventory of particulate product in such reactor and the fraction in each zone of such reactor of the aforesaid total mass

inventory in such reactor, the mole ratio of hydrogen to the first monomer in the vapor phase in such reactor, the mole ratio of the second monomer to the first monomer in the vapor phase in such reactor, the mole ratio of the aforesaid second metal to the aforesaid first metal introduced into the reactor, the molecular weights of the first and second monomers, the relative reactivities of the first and second monomers in the formation of the copolymer, if copolymerization is occurring, and the reactor temperature and pressure. (col.18, lines 4-26).

Wilkinson et al (U.S. 5,688,870) discloses copolymerization process wherein continuous addition of monomers allows for better control of the reaction and thus a more uniform product obtained. In case of copolymers one monomer can be delivered to the reaction in a delay feed method. This is important when the reactivities of monomers are different (col.4, lines 28-42).

Ingle et al (U.S. 5,124,393) discloses copolymer composed of a non-self polymerizable comonomer and other monomer (abstract), wherein about 20 to about 60 weight percent of a substantially non-self-polymerizable monomer; and
(b) about 40 to about 80 weight percent of a copolymerizable monomer having a water-soluble homopolymer, are polymerized in a reactor while delay feeding the supplemental polymer to the reactor during at least a portion of the synthesis procedure (claim 22).

However, none of the cited references teach expressly or suggest fairly individually or in a combination a process composed of a modeling and real process, wherein the data obtained from a modeling process are utilized in a delay feeding mode

of faster reacting monomer in a real polymerization process in order to control the molecular architecture.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (571) 272-1115. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tatyana Zalukaeva
Primary Examiner
Art Unit 1713

September 10, 2004

